CLAIMS

1. A fibre reinforced cement tubular body having a wall thickness to outer diameter ratio of less than around 0.050.

2. A fibre reinforced cement tubular body according to claim 1 wherein the body has a wall thickness to outer diameter ratio of less than around 0.045.

3. A fibre reinforced cement tubular body according to claim 2 wherein the body has a wall thickness to outer diameter ratio of less than around 0.035.

4. A fibre reinforced cement tubular body according to any one of the preceding claims wherein an outer circumferential surface of the body is machined or profiled to achieve the wall thickness to outer diameter ratio.

5. A fibre reinforced cement tubular body according to claim 4 wherein the body is machined or profiled on a lathe assembly.

6. A fibre reinforced cement tubular body according to claim 5 wherein the body is formed from a fibre reinforced cement blank manufactured on a mandrel using a Hatschek process.

7. A fibre reinforced cement tubular body according to claim 6 wherein an initial wall thickness of the blank is substantially reduced and a surface finish of the blank is refined to form the body.

8. A fibre reinforced cement tubular body according to any one of the preceding claims adapted for use as an architectural column.

9. A fibre reinforced cement tubular body according to any one of claims 1 to 7 adapted for use as a pipe, structural member or concrete forming element.

10. A lathe assembly for forming an elongate tubular body, said lathe assembly including:

an elongate base;

a pair of chucks located at opposite longitudinal ends of said base, said chucks being configured to engage opposite longitudinal ends of the tubular body;

two or more lateral supports connected to said base to support the tubular body at two or more support locations between its ends;

drive means for rotating the body about a longitudinal axis; and

a profiling tool connected to the base and engageable to machine or profile an outer circumferential surface of the tubular body.

11. A lathe assembly according to claim 10 wherein two or more of the lateral support locations are located at substantially the same axial position along the length of the body.

12. A lathe assembly according to claim 10 or claim 11 wherein two or more of the lateral support locations are located at different axial positions along the body.

13. A lathe assembly according to claim 11 or claim 12 wherein two or more of the lateral support locations are spaced circumferentially around the body.

14. A lathe assembly according to any one of claims 10 to 13 wherein the lateral supports take the form of support rollers engageable with an outer circumferential surface of the body.

15. A lathe assembly according to claim 14 wherein the support rollers and the profiling tool are adapted to move in unison along the length of the body, so as to remain in their relative axial locations during the profiling operation.

16. A lathe assembly according to claim 14 adapted to move the elongate body longitudinally in relation to the support rollers and the profiling tool, such that the support rollers and the profiling tool remain in their relative axial locations during the profiling operation.

17. A lathe assembly according to any one of claims 14 to 16 wherein two of the support rollers are dependently movable into engagement with the body.

18. A lathe assembly according to claim 17 wherein the dependently movable support rollers are hingedly mounted to opposite ends of a first bell crank lever having an axis of rotation substantially parallel to the longitudinal axis of the body.

19. A lathe assembly according to claim 18 wherein the first bell crank lever is hingedly connected to one end of a second bell crank lever having an axis of rotation substantially parallel to the longitudinal axis of the body.

20. A lathe assembly according to claim 19 wherein the other end of the second bell crank lever is rotatably connected to a first base plate.

21. A lathe assembly according to claim 20 wherein the first base plate is longitudinally movable along the elongate base.

22. A lathe assembly according to claim 20 or claim 21 wherein the first base plate is selectively fixedly connectable to the elongate base in any one of a plurality of axial locations.

23. A lathe assembly according to any one of claims 19 to 22 wherein a pneumatic actuator is operable on the second bell crank lever to move the respective rollers into and out of engagement with the body.

24. A lathe assembly according to any one of claims 14 to 23 wherein two of the support rollers are independently movable into engagement with the body.

25. A lathe assembly according to claim 24 wherein the independently movable support roller is mounted to one end of a hingeable arm.

26. A lathe assembly according to claim 25 wherein the arm has an axis of rotation substantially parallel to the longitudinal axis of the body.

27. A lathe assembly according to claim 25 or claim 26 wherein the other end of the arm is hingedly connected to a second base plate.

28. A lathe assembly according to claim 27 wherein the second base plate is longitudinally movable along the elongate base.

29. A lathe assembly according to claim 27 or claim 28 wherein the second base plate is selectively fixedly connectable to the elongate base in any one of a plurality of axial locations.

30. A lathe assembly according to any one of claims 25 to 29 wherein a pneumatic actuator is operable on the arm to move the respective roller into and out of engagement with the body.

31. A lathe assembly according to any one of claims 14 to 30 including three of the support rollers, two of the support rollers being movable into engagement with the body independently of the third support roller.

32. A lathe assembly according any one of claims 14 to 31 wherein at least one of the support rollers is radially movable in response to imperfections in the outer circumferential surface of the body.

33. A lathe assembly according to any one of claims 10 to 32 wherein the profiling tool when in use is located axially adjacent one of the lateral support locations.

34. A lathe assembly according to any one of claims 10 to 33 wherein the profiling tool is longitudinally movable along the elongate base.

35. A lathe assembly according to any one of claims 10 to 34 wherein the profiling tool is selectively fixedly connectable to the elongate base in any one of a plurality of axial locations.

36. A lathe assembly according to any one of claims 10 to 35 wherein the body is formed of fibre reinforced cement.

37. A lathe assembly according to claim 36 wherein the body is formed from a fibre reinforced cement blank manufactured on a mandrel using a Hatschek process.

38. A lathe assembly according to claim 37 used to substantially reduce the initial wall thickness and refine the surface finish of the blank to form the body.

39. A lathe assembly according to any one of claims 10 to 38 wherein the body has a wall thickness to outer diameter ratio of less than around 0.050.

40. A lathe assembly according to claim 39 wherein the body has a wall thickness to outer diameter ratio of less than around 0.045.

41. A lathe assembly according to claim 40 wherein the body has a wall thickness to outer diameter ratio of less than around 0.035.

42. A lathe assembly according to any one of claims 10 to 41 wherein the body is an architectural column.

43. A lathe assembly according to any one of claims 10 to 41 wherein the body is a pipe, a structural member or a concrete forming element.

44. An elongate tubular body formed on a lathe assembly according to any one of claims 10 to 43.

45. An elongate tubular body formed of fibre reinforced cement on a lathe assembly according to any one of claims 10 to 43.

46. An elongate tubular body formed from a fibre reinforced cement blank on a lathe assembly according to any one of claims 10 to 43, wherein the blank is manufactured on a mandrel using a Hatschek process.

47. An elongate tubular body according to claim 46 wherein the lathe assembly is used to substantially reduce the initial wall thickness and refine the surface finish of the blank to form the body.

48. An elongate tubular body according to any one of claims 45 to 47 having a wall thickness to outer diameter ratio of less than around 0.050.

49. An elongate tubular body according to claim 48 having a wall thickness to outer diameter ratio of less than around 0.045.

50. An elongate tubular body according to claim 49 having a wall thickness to outer diameter ratio of less than around 0.035.

51. An elongate tubular body according to any one of claims 44 to 50 adapted for use as an architectural column.

52. An elongate tubular body according to any one of claims 44 to 50 adapted for use as a pipe, structural member or concrete forming element.

53. A method of manufacturing an elongate tubular body, said method including the steps of:

supporting the body at or adjacent its ends for rotation about a longitudinal axis;

supporting the body laterally at two or more lateral support locations between the ends;

rotating the body about the longitudinal axis; and

machining or profiling an outer surface of the body using a profiling tool.

54. A method according to claim 53 wherein two or more of the lateral support locations are located at substantially the same axial position along the length of the body.

55. A method according to claim 53 or claim 54 wherein two or more of the support locations are located at different axial positions along the body.

56. A method according to claim 54 or claim 55 wherein two or more of the lateral support locations are spaced circumferentially around the body.

57. A method according to any one of claims 53 to 56 wherein the lateral support is provided by respective support rollers engageable with an outer circumferential surface of the body.

58. A method according to claim 57 wherein the support rollers and the profiling tool are moved in unison along the length of the body, so as to remain in their relative axial locations during the profiling operation.

59. A method according to claim 57 wherein the elongate body is moved longitudinally in relation to the support rollers and the profiling tool, such that the support rollers and the profiling tool remain in their relative axial locations during the profiling operation.

60. A method according to any one of claims 57 to 59 wherein two of the support rollers are dependently moved into engagement with the body.

61. A method according to claim 60 wherein the dependently movable support rollers are hingedly mounted to opposite ends of a first bell crank lever having an axis of rotation substantially parallel to the longitudinal axis of the body.

62. A method according to claim 61 wherein the first bell crank lever is hingedly connected to one end of a second bell crank lever having an axis of rotation parallel to the longitudinal axis of the body.

63. A method according to claim 62 wherein the other end of the second bell crank lever is rotatably connected to a first base plate.

64. A method according to claim 63 wherein the first base plate is longitudinally moved along the elongate base.

65. A method according to claim 63 or claim 64 wherein the first base plate is selectively fixedly connected to the elongate base in any one of a plurality of axial locations.

66. A method according to any one of claims 62 to 65 wherein a pneumatic actuator is operatively applied to the second bell crank lever to move the respective rollers into and out of engagement with the body.

67. A method according to any one of claims 57 to 66 wherein two of the support rollers are independently moved into engagement with the body.

68. A method according to claim 67 wherein the independently moved support roller is mounted to one end of a hingeable arm.

69. A method according to claim 68 wherein the arm has an axis of rotation parallel to the longitudinal axis of the body.

70. A method according to claim 68 or claim 69 wherein the other end of the arm is hingedly connected to a second base plate.

71. A method according to claim 70 wherein the second base plate is longitudinally moved along the elongate base.

72. A method according to claim 70 or claim 71 wherein the second base plate is selectively fixedly connected to the elongate base in any one of a plurality of axial locations.

73. A method according any one of claims 68 to 72 wherein a pneumatic actuator is operatively applied on the arm to move the respective roller into and out of engagement with the body.

74. A method according to any one of claims 57 to 73 wherein three of the support rollers are provided, two of the support rollers being movable into engagement with the body independently of the third support roller.

75. A method according any one of claims 57 to 74 wherein at least one of the support rollers is configured to move radially in response to imperfections in the outer circumferential surface of the body.

76. A method according to any one of claims 53 to 75 wherein the profiling tool when in use is located axially adjacent one of the lateral support locations.

77. A method according to any one of claims 53 to 76 wherein the profiling tool is longitudinally moved along the elongate base.

78. A method according to any one of claims 53 to 77 wherein the profiling tool is selectively fixedly connected to the elongate base in any one of a plurality of axial locations.

79. A method according to any one of claims 53 to 78 wherein the body is formed of fibre reinforced cement.

80. A method according to claim 79 wherein the body is formed from a fibre reinforced cement blank manufactured on a mandrel using a Hatschek process.

81. A method according to claim 80 including the steps of substantially reducing the initial wall thickness and refining the surface finish of the blank to form the body.

82. A method according to any one of claims 53 to 81 wherein the body is machined or profiled to a wall thickness to outer diameter ratio of less than around 0.050.

83. A method according to claim 82 wherein the body is machined or profiled to a wall thickness to outer diameter ratio of less than around 0.045.

84. A method according to claim 83 wherein the body is machined or profiled to a wall thickness to outer diameter ratio of less than around 0.035.

85. A method according to any one of claims 53 to 84 wherein the body is machined or profiled on a lathe assembly.

86. A method according to any one of claims 53 to 85 wherein the body is an architectural column.

87. A method according to any one of claims 53 to 85 wherein the body is a pipe, a structural member or a concrete forming element.

88. An elongate tubular body manufactured by the method according to any one of claims 53 to 87.

89. An elongate tubular body manufactured on a lathe assembly by the method according to any one of claims 53 to 87.

90. An elongate tubular body formed of fibre reinforced cement by the method according to any one of claims 53 to 87.

91. An elongate tubular body formed from a fibre reinforced cement blank by the method according to any one of claims 53 to 87, wherein the blank is manufactured on a mandrel using a Hatschek process.

92. An elongate tubular body according to claim 91 wherein the method includes the steps of substantially reducing the initial wall thickness and refining the surface finish of the blank to form the body.

93. An elongate tubular body according to any one of claim 90 to 92 having a wall thickness to outer diameter ratio of less than around 0.050.

94. An elongate tubular body according to claim 93 having a wall thickness to outer diameter ratio of less than around 0.045.

95. An elongate tubular body according to claim 94 having a wall thickness to outer diameter ratio of less than around 0.035.

96. An elongate tubular body according to any one of claims 88 to 95 adapted for use as an architectural column.

97. An elongate tubular body according to any one of claims 88 to 95 adapted for use as a pipe, structural member or concrete forming element.

98. A fibre reinforced cement tubular body substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings and/or examples.

99. An elongate tubular body substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings and/or examples.

100. A lathe assembly substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings and/or examples.

101. A method of manufacturing an elongate tubular body substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings and/or examples.